Method of Test for
AMOUNT OF MATERIAL FINER THAN the 75 µm (NO. 200) SIEVE IN AGGREGATE BY WASH
DOTD Designation: TR 112M/112-99

I. Scope

A. This method of test is used to determine the quantity of material finer than the 75 µm (No. 200) sieve in aggregate by washing. The procedure is used in conjunction with DOTD TR 113, when the total material finer than the 75 µm (No. 200) sieve is to be determined by both dry sieving and washing.
B. Reference Documents
   1. AASHTO M 92, Standard Specifications for Wire-Cloth Sieves for Testing Purposes
   2. DOTD TR 113, Sieve Analysis of Fine and Coarse Aggregates
   3. DOTD TR 108, Splitting and Quartering Samples
   4. DOTD TR 106, Determining Total Moisture and Free Moisture in Aggregate

II. Apparatus

A. **Sieves** - a nest of 2 sieves, the lower being a 75 µm (No. 200) sieve and the upper being a cover sieve ranging from a 2.36 mm - 1.18 mm (No. 8 - No. 16) sieve, both conforming to the requirements of AASHTO M92.
B. **Container** - a pan or bucket of a size sufficient to contain the sample covered with water and large enough to permit vigorous agitation without loss of any part of the sample or water.
C. **Balance** - a balance or scale sensitive to 0.2% for the weight of the sample to be tested
D. **Drying Device**
   1. Oven - an oven capable for maintaining a temperature of 110 ±5°C (230 ±9°F.
   2. Hot Plate - an approved hot plate with a shield. Open-flame hot plates must be equipped with a shield which evenly disperses heat and prevents direct contact of the flame with the drying pan.
E. **Pans** - metal pans of a size sufficient to contain the sample during washing and drying
F. **Miscellaneous tools** - spoons, spatulas, brushes, etc.
G. **Personal Protective Equipment** - goggles, dust respirator, equipment for handling hot substances
H. **Wetting Agent** - any dispersing agent, such as dishwashing detergent
I. **Aggregate Test Report** (DOTD Form No. 03-22-0745)

III. Health Precautions

Proper equipment and precautions are to be used whenever hot materials or equipment must be handled. Use container holders or gloves while handling hot containers. Use appropriate respirator and turn on ventilation system when working in dusty areas.

IV. Sample

The sample shall consist of the required quantity of aggregate for wash.

V. Procedure

A. Dry the sample (if not already dry) in accordance with TR 106.
B. If not already obtained during other test procedures, determine mass of sample to nearest 0.1 g (0.01 lb) and record on the worksheet as "initial dry total mass."
C. Place the sample in the pan and cover with water containing a sufficient amount of wetting agent to assure a thorough separation of the material passing the 0.075 mm (No. 200) sieve from the coarser particles.

Note 1: *If wetting agent is not liquid, allow agent to dissolve prior to placing sample into the water.*

D. Nest the sieves with the coarsest sieve on top.
E. Agitate the aggregate and water vigorously using a large spoon to stir the contents, causing the complete separation of all particles finer than the 75 µm (No. 200) sieve from the coarser particles. Agitate sufficiently to bring the fine particles into suspension.
F. Immediately pour the wash water over the nested sieves, being careful not to decant the coarse particles.

Note 2: *For materials with large quantities of material retained on the 75μm (No. 200) sieve, it may be necessary to perform Step H between washes in Step F.*

G. Repeat Steps C - F until the wash water is clear.

H. Return all material retained on the nested sieves to the washed sample by flushing each sieve with water from the back side, being careful not to lose any material

I. .Dry the washed sample in accordance with TR 106. Determine the mass to the nearest 0.1 g (0.01 lb) and record on the worksheet as "Dry Mass after Wash."

J. Determine the decantation loss in accordance with Step VI and record on the worksheet as "decant loss."

VI. Calculations

Use the following formula to calculate decantation loss (A) and record on the worksheet.

$$A = B - C$$

where:

B = initial dry total mass (before wash), g
C = dry mass after wash, g

example:

B = 538.4
C = 398.8

$$A = B - C$$

$$538.4 - 398.8$$

$$A = 139.6 \text{ g}$$

VII. Report

Report Decantation Loss to the nearest 0.1 g (0.01 lb)

VIII. Normal Test Reporting Time

Normal test reporting time is 5 hours.